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AMENDMENT TRANSMITTAL

PATENT

Application No.: 09/828,067
Filing Date: April 6, 2001
First Named Inventor: Don Curry et al.
Examiner's Name: Zervigon, Rudy
Art Unit: 1763
Attorney Docket No.: 005040/TCG/PMD/LE

- ☐ An Amendment After Final Action (37 CFR 1.116) is attached and applicant(s) request expedited action.
- ☒ Charge any fee not covered by any check submitted to Deposit Account No. 02-2666.
- ☒ Applicant(s) hereby request and authorize the U.S. Patent and Trademark Office to (1) treat any concurrent or future reply that requires a petition for extension of time as incorporating a petition for extension of time for the appropriate length of time and (2) charge all required fees, including extension of time fees and fees under 37 CFR 1.16 and 1.17, for any concurrent or future reply to Deposit Account No. 02-2666.
- ☐ Applicant(s) claim small entity status (37 CFR 1.27).


ATTACHMENTS

- ☐ Preliminary Amendment
- ☐ Amendment/Response with respect to Office Action
- ☐ Amendment/Response After Final Action (37 CFR 1.116) (reminder: consider filing a Notice of Appeal)
- ☐ Notice of Appeal
- ☐ RCE (Request for Continued Examination)
- ☐ Supplemental Declaration
- ☐ Terminal Disclaimer (reminder: if executed by an attorney, the attorney must be properly of record)
- ☐ Information Disclosure Statement (IDS)
- ☐ Copies of IDS citations
- ☐ Petition for Extension of Time
- ☐ Fee Transmittal Document (that includes a fee calculation based on the type and number of claims)
- ☐ Cross-Reference to Related Application(s)
- ☐ Certified Copy of Priority Document
- ☒ Other: Amended Appeal Brief Under 37 C.F.R. 41.37(d)
- ☐ Other: _____
- ☐ Check(s)
- ☒ Postcard (Return Receipt)

SUBMITTED BY:

BLAKELY SOKOLOFF TAYLOR & ZAFMAN LLP

TYPED OR PRINTED NAME: Michael A. Bernadicou

SIGNATURE: 

REG. NO.: 35,934

DATE: November 15, 2007

ADDRESS: 1279 Oakmead Parkway

Sunnyvale, California 94085-4040


TELEPHONE NO.: (408) 720-8300

CERTIFICATE OF MAILING BY FIRST CLASS MAIL (if applicable)

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V. SUMMARY OF CLAIMED SUBJECT MATTER

This section of this Appeal Brief is set forth to comply with the requirements of 37 C.F.R. 41.37(c)(1)(v) and is not intended to limit the scope of the claims in any way. Exemplary implementations of the limitations of independent claims 29, 42, and 47, and dependent claim 40 are described below.

Appellant's invention, as claimed in claims 29, 40, 42, and 47, is directed to an apparatus for processing wafers, such as those used in the semiconductor industry, paragraph [0001].

Independent claim 29 is related to a wafer processing apparatus, paragraph [0001]. The processing apparatus 10 comprises a processing chamber 12, a manifold component 18, processing gas supply line 20, and an exhaust line 22 (FIG. 3, paragraph [0020]). The processing gas supply line 20 is connected to the manifold component 18 for providing a processing gas comprising reactive gases into a manifold cavity 60 (FIG. 3, paragraph [0024]). As discussed in paragraph [0002] of the Background section, processing gas flows through the supply line 20. Exhaust line 22 is connected to the processing chamber 12 for flowing an exhaust gas from the processing chamber 12 (FIG. 3, paragraph [0024]). The particular configuration of the wafer processing apparatus creates a flow pattern of the processing gas over a wafer 74 and toward the exhaust line 22 that promotes even processing over the upper surface of the wafer (Abstract, paragraphs [0006] and [0007]).

The processing chamber 12 is partially defined by an upper wall 32 (FIG. 3, paragraphs [0005] and [0021]). Additionally, a susceptor 14 is in the processing chamber 12, and a wafer supply opening 40 is formed in one of the chamber walls for transferring a wafer into the chamber 12 and on the susceptor 14 (FIG. 3, paragraph [0021]). A manifold component 18 (FIG. 10) located on the processing chamber 12 together with the upper surface 46 of the upper wall 32 of the processing chamber 12 defines the manifold cavity 60 (FIG. 3, paragraphs [0005] and [0023]).

The upper wall 32 of the processing chamber 12 comprises a plurality of processing gas supply openings 42 (FIG. 3, paragraph [0022]) which provide a pathway for flowing the processing gas from the manifold cavity 60 and into the processing chamber 12, paragraph [0024]. The processing gas supply openings 42 (242 in FIG. 10) are non-uniformly distributed over the upper wall 32 (232 in FIG. 10), paragraph [0007]. The non-uniformly distributed processing gas supply openings 242 create a predominantly vertical flow of processing gas onto the wafer 274 (FIG. 10, paragraph [0035]).

In dependent claim 40, the processing gas in the manifold cavity 60 comprises non-depleted reactive gases used for processing the wafer 74. As discussed in paragraph [0002] of the Background section, processing gases flow through the supply line 20.

Independent claim 42 is related to a wafer processing apparatus, paragraph [0001]. The processing apparatus 10 comprises a processing chamber 12, a manifold component 18, processing gas supply line 20, and an

exhaust line 22 (FIG. 3, paragraph [0020]). The processing gas supply line 20 is connected to the manifold component 18 for providing a processing gas comprising non-depleted reactive gases into a manifold cavity 60 (FIG. 3, paragraph [0024]). As discussed in paragraph [0002] of the Background section, processing gas flows through the supply line 20.

Exhaust line 22 is connected to the processing chamber 12 for flowing an exhaust gas from the processing chamber 12 (FIG. 3, paragraph [0024]). The particular configuration of the wafer processing apparatus creates a flow pattern of the processing gas over a wafer 74 and toward the exhaust line 22 that promotes even processing over the upper surface of the wafer (Abstract, paragraphs [0006] and [0007]).

The processing chamber 12 is partially defined by an upper wall 32 (FIG. 3, paragraphs [0005] and [0021]). Additionally, a susceptor 14 is in the processing chamber 12, and a wafer supply opening 40 is formed in one of the chamber walls for transferring a wafer into the chamber 12 and on the susceptor 14 (FIG. 3, paragraph [0021]). A manifold component 18 (FIG. 10) located on the processing chamber 12 together with the upper surface 46 of the upper wall 32 of the processing chamber 12 defines the manifold cavity 60 (FIG. 3, paragraphs [0005] and [0023]).

The upper wall 32 of the processing chamber 12 comprises a plurality of processing gas supply openings 42 (FIG. 3, paragraph [0022]) which provide a pathway for flowing the processing gas from the manifold cavity 60 and into the processing chamber 12, paragraph [0024]. The processing gas supply openings

42 (242 in FIG. 10) are non-uniformly distributed over the upper wall 32 (232 in FIG. 10), paragraph [0007]. The flow pattern of processing gas onto the upper surface of the wafer 274 is predominantly determined by the non-uniformly distributed processing gas supply openings 242, manifold cavity 60 and component 18, processing gas supply 20, and exhaust system comprising an exhaust line 122. (FIG. 10, see paragraph [0029] describing how gas is drawn into the manifold cavity 60, and paragraph [0035] describing flow pattern onto the wafer 274).

Independent claim 47 is related to a wafer processing apparatus, paragraph [0001]. The processing apparatus 10 comprises a processing chamber 12, a manifold component 18, processing gas supply line 20, and an exhaust line 22 (FIG. 3, paragraph [0020]). The processing gas supply line 20 is connected to the manifold component 18 for providing a processing gas comprising reactive gases into a manifold cavity 60 (FIG. 3, paragraph [0024]). As discussed in paragraph [0002] of the Background section, processing gas flows through the supply line 20. Exhaust line 22 is connected to the processing chamber 12 for flowing an exhaust gas comprising reacted gases and depleted processing gas from the processing chamber 12 (FIG. 3, paragraph [0024]). The particular configuration of the wafer processing apparatus creates a flow pattern of the processing gas over a wafer 74 and toward the exhaust line 22 that promotes even processing over the upper surface of the wafer (Abstract, paragraphs [0006] and [0007]).

The processing chamber 12 is partially defined by an upper wall 32 (FIG. 3, paragraphs [0005] and [0021]). Additionally, a susceptor 14 is in the

processing chamber 12, and a wafer supply opening 40 is formed in one of the chamber walls for transferring a wafer into the chamber 12 and on the susceptor 14 (FIG. 3, paragraph [0021])). A manifold component 18 (FIG. 10) located on the processing chamber 12 together with the upper surface 46 of the upper wall 32 of the processing chamber 12 defines the manifold cavity 60 (FIG. 3, paragraphs [0005] and [0023]).

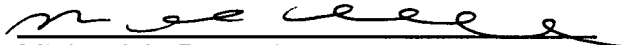
The upper wall 32 of the processing chamber 12 comprises a plurality of processing gas supply openings 42 (FIG. 3, paragraph [0022]) which provide a pathway for flowing the processing gas from the manifold cavity 60 and into the processing chamber 12, paragraph [0024]. The processing gas supply openings 42 (242 in FIG. 10) are non-uniformly distributed over the upper wall 32 (232 in FIG. 10), paragraph [0007].

Pursuant to 37 C.F.R. § 1.136(a)(3), applicant(s) hereby request and authorize the U.S. Patent and Trademark Office to (1) treat any concurrent or future reply that requires a petition for extension of time as incorporating a petition for extension of time for the appropriate length of time and (2) charge all required fees, including extension of time fees and fees under 37 C.F.R. §§ 1.16 and 1.17, to Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

Date: November 15, 2007


Michael A. Bernadicou
Reg. No. 35,934

1279 Oakmead Parkway
Sunnyvale, CA 94085-4040
(408) 720-8300